



DEVELOPMENT OF KNOWLEDGE MANAGEMENT SYSTEMS FOR LIBYAN INSTITUTES OF HIGHER LEARNING

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Information of Article	ABSTRACT
<i>Article history:</i> Received: 1 Mar 2020 Revised: 25 Mar 2020 Accepted: 1 Apr 2020 Available online: 10 Apr 2020 <i>Keywords:</i> Knowledge Management System Institutes of Higher Education Libya System Development	Knowledge Management System is an important innovation. Yet the Libyan Higher Institute of Learning sector lacks such Knowledge Management System. Academic staff are not benefiting from collaboration among themselves and sharing of their professional perception. They are isolated in their lecture rooms or their faculties which discourages the development and sharing of knowledge practice among members of the academic. This study aims to explore developing a prototype application to determine their prospect for instructional staff networking, sharing, learning and managing knowledge in Libyan Institutes of Higher Learning. By making so practical contribution to higher education institutes in terms of offering a tool that enables the Higher Education institutes to plan KM systems acceptance both effectively and successfully and to improve performance, competitive advantage, and to enhance their work.

1. Introduction

In the contemporary world, knowledge is recognised by most organisations as a vital resource to obtain and sustain competitive advantage. As an organisational culture, such experience has transformed into a corporate asset with the capability to increase productivity and adaptivity of an organisation (Marquardt, 2011). Knowledge facilitates the stimulation of ideas and actions that result in innovation development and performance improvement. Individuals doing their jobs turn to retain the education of their careers as the year roll. Knowledge of Individual helps their organisations keep their businesses complete and keep business functioning properly because employees know the operations, the product lines and customers. Therefore, knowledge of all these three components helps companies to achieve their goals (Leonard & Walter, 2005). This knowledge asset is an intangible organisational resource in the form of insights and experiences of individuals that are developed for over a more extended period. Many organisations strive to retain their knowledge sustainably. Knowledge management (KM) becomes a management approach to create knowledge value built-in organisational members' mindsets (Leonard & Walter, 2005). Individuals are a foundation unit in working with knowledge (O'Dell & Hubert, 2011). KM encourages a management strategy of "getting the right knowledge to the right people, in the right place, at the right time" (NHS National Library for Health, 2005, p.2) and then ensuring people share and transfer their knowledge into action to improve their work performance.

According to Laudon and Laudon (2018), knowledge management systems are some of the fastest-growing areas of government and corporate information systems investments. There has been a dramatic growth in the past decade in researches on knowledge and knowledge management in the field of management, information systems and economics. The main goal of managing knowledge is to capture the experience that serves the needs of the employees and the strategic objectives of the organisation (O'Dell & Hubert, 2011). Like other business organisations, past studies indicated that higher education institutions could apply the Knowledge Management approach to support their performance achievements (Kidwell et al., 2000; Ramachandran et al., 2013, Sunalai, 2017). They can apply Knowledge Management to support their goals by aiming at increasing knowledge-based activities in line with their institutional achievements, particularly the improvement of quality performance. Knowledge Management also plays a significant role in providing and maintaining quality performance in educational institutions. Knowledge management (KM), which used to be high on the list of many industries, has become a priority for higher education as well. There is a growing acknowledgement that an institutional-wide approach to KM can enable higher education institutions (HEIs) to evolve more effortlessly to a highly effective and dynamic educational environment. A highly effective and dynamic educational environment promises considerable improvements in institutional-wide knowledge-sharing activities and subsequent improvement in overall performance (Ramachandran et al., 2007). Having said this, however, only a few educational institutions are found to have a full-fledged KM practice in place (Ramachandran et al., 20013). Studies in of KMS in Libyan organisations are scarce to find and KMS studies relating to Libya Institutes of Higher Learning, in particular, seem not to exist.

1.1. Problem Statement

Knowledge Management has been increasingly being used in businesses sectors, academic sectors and service sectors, over the past decade. However, few studies have explored Knowledge Management in educational institutions (Ramachandran et al., 2013). Higher Educational Institutes have not yet applied Knowledge Management application like business-oriented organisations. Researchers have been studying various Knowledge Management enablers and processes. Heisig (2009) and Lehner and Haas (2010) in particular, performed two Knowledge Management meta-analysis studies in business. Through a comprehensive and cohesive list of Knowledge Management enablers and processes are provided by this meta-analysis. However, they have a limited foundation of making connections to the higher education context. Further, studies that assess the development of Knowledge management in higher institutions of learning are scarce. In the context of Libya, reviews of Knowledge Management System and practice in higher institutions could not be found in the past literature. There is also a gap in knowledge regarding how organisational culture, education, training and IT infrastructure are vital and required for successful adoption of Knowledge Management System by the Libyan Institutes of Higher Learning.

Currently, developments in information technology have been considerably shaping our way of life, the way people live, as well as the ways organisations, operate (Wang and Wang, 2005). Knowledge Management Systems (KMS) has been recognised as one of the crucial investments of Information Systems that organisations have to make to remain very competitive and deliver efficient services (Pina et al., 2013, Laudon and Laudon, 2018). Although the tremendous amount of effort organisations worldwide have devoted in acquiring Knowledge Management Systems, that is not the case with Libyan organisations and Institutes of Higher Learning are suffering from the absence of Knowledge Management (KM) implementation. In institutions of Higher Learning of Libya, the roles of knowledge using even essential information technology tools, to develop a knowledge-intensive culture by aggregating and encouraging behaviours such as knowledge sharing (as opposed to hoarding) and proactively seeking and offering knowledge are not practised by faculty. As knowledge workers, academic staff can benefit from collaboration among themselves and sharing their professional perception. Yet, academic staff are isolated in their lecture rooms or their faculties. This isolation discourages the development and sharing of knowledge and practices among members of the academic (Comensoli, J. (2014). That means that faculty members regard themselves to be individually responsible for developing activities and resources, criticising their practice of teaching and learning. This study investigates the development of a knowledge-management system that enables the sharing of knowledge to improve professors and lecturers teaching in Higher educations in Libya. Lecturing in higher institutes is a profession that is defined by intellectual labour. Professors and lecturers are required to apply knowledge from multiple domains. For example, the delivery of learning and teaching could require knowledge of the curriculum, lecture sessions and room management; of strategies for catering the unique need of students.

1.2. Research Aim and Objectives

This study aims to explore the development of a prototype application to determine their prospect for academic staff networking and knowledge management capability in Libya Institute of Higher Learning. Therefore, the objectives of this research are as follows:

- RO1 To analyse the current practices of knowledge management systems for teaching and learning in Institutes of Higher Learning in Libya.
- RO2 To identify the problems or gaps in KMS that Libyan Institutes of Higher Learning encounter while adopting or using new systems.
- RO3 To develop a prototype knowledge management system of Institutes of Higher Learning.
- RO4 To evaluate the prototype knowledge management systems of Institutes of Higher Learning.

1.3. Research Questions

The study aims to answer the following research questions:

- RQ1 What are the current key practices of knowledge management and retrievals and among the faculty members of Libya Institutes of Higher Learning?
- RQ2 What are the problems or gaps in KMS that Libyan Institutes of Higher Learning encounter while adopting or using new systems?
- RQ3 What are the features and functionalities of the knowledge management system that could support Libyan Institutes of Higher Learning?
- RQ4 Would the proposed prototype knowledge management system be effective in resolving the knowledge management issues currently faced by the Higher Institutes of Learning in Libya?

2. Literature Review

2.1 Knowledge Management Definitions

There are different approaches to the definition of knowledge. However, for knowledge management, this study uses the definitions of (Davenport & Prusak, 1998). Davenport & Prusak, (1998) defined knowledge as the mix of experience,

values, contextual information and expert insight that allows individuals to evaluate and incorporate new skills and information. This definition also includes groups of individual. Wei, Choy et al. (2011) also defined it as the management of information, knowledge and expertise available to an organisation, its creation, capture, storage, availability and utilisation so that organisational activities build on what is already known and they extend it further. Knowledge-management systems exist primarily to enable organisational knowledge-sharing. A single definition of knowledge management does not exist. The perspective of research is usually used to define knowledge management. The idea of knowledge as something that can reside in individuals, and knowledge management as being the capture and effective utilisation of that knowledge so that it becomes available as an organisational resource are the concepts that most definitions have in common (Comensoli, 2014). For the sake of this study, knowledge management is defined as “*a systematic way to identify, create, represent and distribute knowledge in a way that enables individual and organisational learning and the development of collaborative practices*” (Comensoli, 2014). Knowing how things are done coupled with the ability to develop new knowledge rapidly, can provide an organisation with a better competitive advantage. Hence, any form of organisation, including educational institutes in this modern era, depend upon knowledge to achieve a competitive edge over their competitors. It enables organisations to innovate and better maintain their assets and capabilities to sustain the usages. Firms that entirely use their knowledge base, together with their competencies, thoughts and the potentials of the individual’s ideas and innovations would be able to compete well and attain competitive advantages over its competitors.

2.2 Knowledge Management in Institutes of Higher Learning

Institutions of higher learning are the main apparatuses society uses for the attainment and pursuit of higher knowledge (Yeh, 2005). For students to be able to function usually higher institutions are utilised as transfer mechanisms to provide students with a knowledge base (Keramati & Azadeh, 2007). As education system is about the production and dissemination of knowledge and whatever happens within the system is in itself knowledge-based; hence it cannot be gainsaid that knowledge and educational institutions are related (Oakley, 2003). For long-term success and sustainability of organisations, knowledge is widely considered to be critical, the primary source of competitive advantage. Knowledge management, on the other hand, refers to the processes by which knowledge is created, shared and used in organisations. Knowledge management is about making noticeable changes to the way everyone in the organisation works. Knowledge management (KM) concepts are increasingly accepted acceptance in the education field (Petrides & Nodine, 2003). As demonstrated in business organisations, Institutes of Higher Learning to have also realised the need to gain a competitive advantage due to stiff competition and pressure to face globalisation (Mohammad, 2012). Due to the growing interest of Knowledge Management in education, various researches were conducted to investigate Knowledge Management issues in a broader context. Studies in the adoption, acceptance and implementations of Institutes of Higher Learning just begin to attract the attention of researchers (Leitner, 2002) and has been very rare in the middle east region.

2.3 Knowledge Management in Libya Higher Institutes of Learning

Most of the very competitive organisations, including Institutes of Higher Learning, concluded and accepted that KM is an idea that supports business and it revolves around the following four processes:

- I. Gathering data and information into the system
- II. Organising items and subjects into context to make them easier to find
- III. Refining knowledge by abstracting, synthesising, and sharing for a value-added effect.
- IV. We are disseminating knowledge to the people who can use it (Badrudin A. Rahman, 2004).

Educational authorities around the world are identifying KM as one of the essential requirements needed for their countries to excel and be a centre of excellence for higher education; a good example is Malaysian Ministry of education approach to KM implementation in IHL (Mohd Ghazali, 2007). It was found that these technologies are yet to enable the free flow of information and the sharing of knowledge among the members in organisations, including higher education. Yet it was evident that Libyan IHL is not utilising Knowledge Management Systems to improve and gain competitive advantages.

3. Methodology

3.1 Design-Based Research (DBR)

The method to be used for this research would be Design-Based Research (DBR). Design-Based research, which is also known as development research, is a research methodology that informs instructional design. It generates solutions to complex, real-world problems, using existing theory and practice. Data are used to evaluate and refine the answer to the problem, and during the process, new theoretical knowledge is created. Design-Based Research (DBR) was defined by Wang & Hannafin (2005) “*as a systematic but flexible methodology aimed to improve educational practices through iterative analysis, design, development and implementation, based on collaboration among researchers and practitioners in real-world settings and leading to contextually-sensitive design principles and theories*”. This research has adopted the designed based research (DBR) model developed by Reeves (2006). The steps, referred-to within this study as phases

of research, are analysis of practical problems, development, evaluation and testing of solutions in practice and documentation and reflection to produce design principles. Below is the graphical representation of the model:

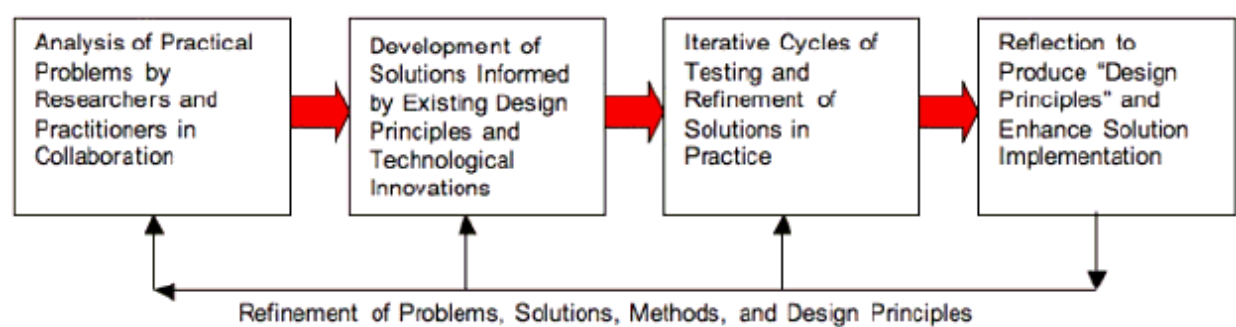


Figure 1. Design-Based Research Approach adopted from (Reeves, 2006)

A total of 6 staff and students from Tripoli University would be approached to collect data in the first phase to get data through the interview, to specify the system requirement for the proposed system. The questionnaire would be used to gather feedback from about 20 users of the proposed method.

3.2 Prototyping

There are many ways of building information systems; for example, Waterfall Model, OOD, spiral method, prototyping etc. The development approach chosen for this research is prototyping. The process of building an experimental system quickly and inexpensively for demonstration and evaluation so that users can better determine information requirements. The prototype can be used as a working version of an information system or part of the system, but it is just an initial model. Once it is operational, it can further be refined until it conforms the requirements of user precisely. If the design has been finalised, the prototype can be converted to a polished production system. (Laudon and Laudon, 2018). The four steps identified by Laudon and Laudon (2018; p 538)

- Step 1: *Identify the user's basic requirements.* The basic information needs of users are captured.
- Step 2: *Develop an initial prototype.* Tools for rapidly generating software developed a working prototype.
- Step 3: *Use the prototype.* The users are encouraged to work with the system to determine how well the prototype meets their needs and to make suggestions for improving the prototype.
- Step 4: *Revise and enhance the prototype.* All modification the user requests are noted and refined the prototype accordingly. After the prototype has been revised, the cycle returns to Step 3. Steps 3 and 4 are repeated until the user is satisfied.

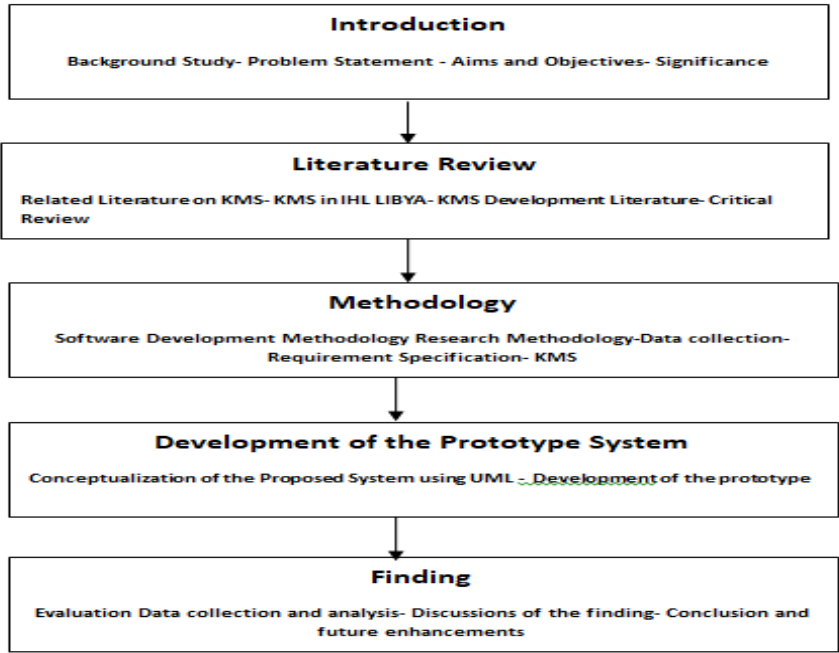


Figure 2. Research Flow Chart

4. Significance of This Study

These study findings will assist universities interested in developing useful knowledge Management Systems for members of academic staff to facilitate networking and sharing of insights for better teaching and learning practises. The planning and creation of knowledge-management systems among Universities where the intention is for academic staff to collaborate on the development of new knowledge would be greatly assisted with this information. This research focuses on the development and evaluation of KMS to improve knowledge management in Libya IHL. Previous studies have shown that system acceptance, and usage is increasingly viewed as an essential element of the measurement of the success of information systems (Hossain and de Silva 2009). Knowledge management is an innovation in Libya, and Higher Institutions are a worthwhile topic to study, with the hope of improving productivity in Libyan Higher Institutions in the future. Knowledge management has been widely considered in developed countries, but comparatively few studies have been undertaken in developing countries, with a limited investigation in Libya. Though the Libyan government encourages studies that could potentially improve the lives of Libyan citizens, through the development of new technology knowledge management studies are challenging to be found. As do other sectors, the Libyan Higher Institution of Science and Technology are eager to implement new Information Technologies, including KMS. However, this technology requires a large amount of investment, and therefore its implementation requires careful study and preparations for successful implementation (Saleh et al., 2017). Implementing Knowledge Management System in Higher Institutes of Learning is an innovation that would be the first innovation of its kind in Libya. Also, this study will provide a tool that will enable IHL academic staff to improve learning and teaching among them. Besides, there is currently almost non-existence of researches of knowledge management systems in Libya, especially in the higher institute of education. To the best of my knowledge, this research would be the first of its kind.

5. Conclusion

Knowledge Management System is an important innovation yet is lacking in Libyan Higher Institute of Learning. This research aims develop a knowledge management system for Libyan Higher Institute of Learning and by making so practical contribution to higher education institutes in terms of offering a tool that enables the Higher Education institutes to plan KM systems acceptance both effectively and successfully and to improve performance, competitive advantage, and to enhance their work. This article provides the background of this study, the problem statement, the research aims and objectives, the research questions, methodology for the research and the significance of the study.

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